

Treating Open and Closed Chest Wounds

OBJECTIVES:

-What is an Open Chest wound? How do we treat it?

-What is a Closed Chest wound? How do we treat it?



Treating Open and Closed Chest Wounds (Cont'd)

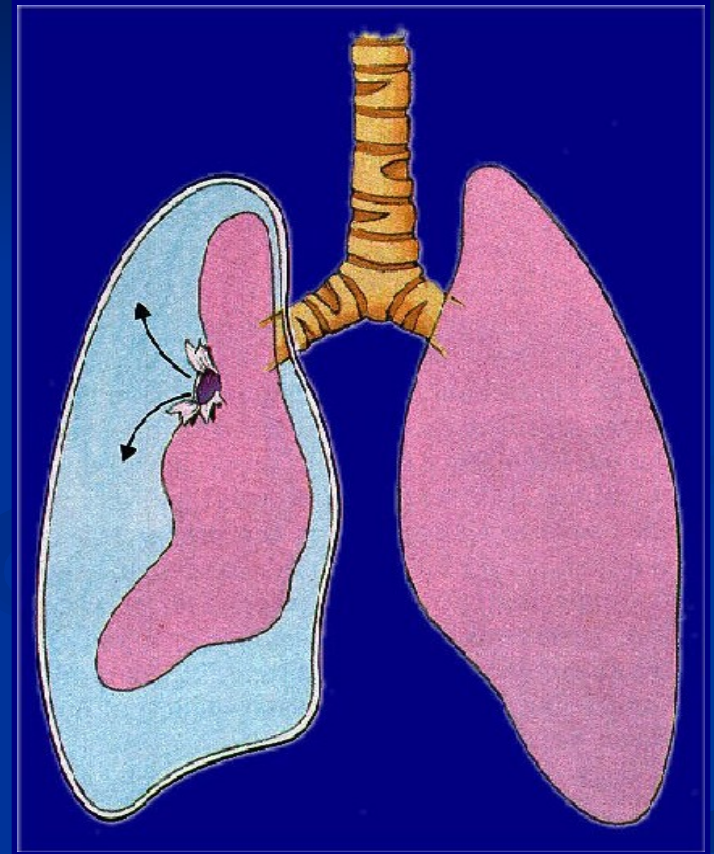
- **Signs and Symptoms of a Sucking Chest Wound**
 - **Sucking or Hissing sounds coming from the Chest wound**
 - **Casualty coughing up blood**
 - **Frothy blood coming from the wound site**
 - **Shortness of breath; Difficulty breathing**
 - **Chest not rising normally when casualty inhales**
 - **Pain in shoulder or anywhere that increases with breathing**
 - **Bluish tint of lips, inside mouth, fingertips or nail beds**
 - **Rapid and weak heartbeat**

Treating Open and Closed Chest Wounds (Cont'd)

Air in between Lung
“bag” and rib cage.

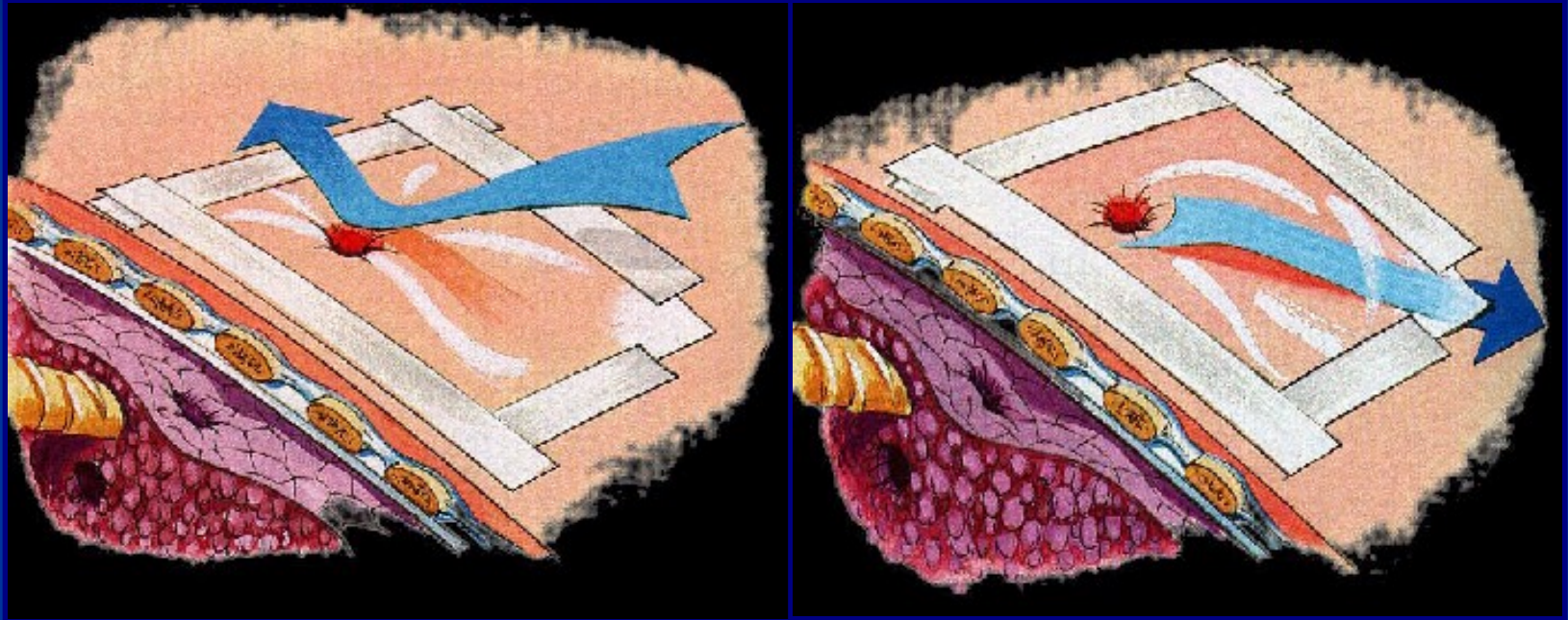
Decompression allows
the escape of this air

Will not re-inflate
lung, but will relieve
tension and pressure
in chest area.



Treating Open and Closed Chest Wounds (Cont'd)

Open Pneumothorax



Treating Open and Closed Chest Wounds (Cont'd)

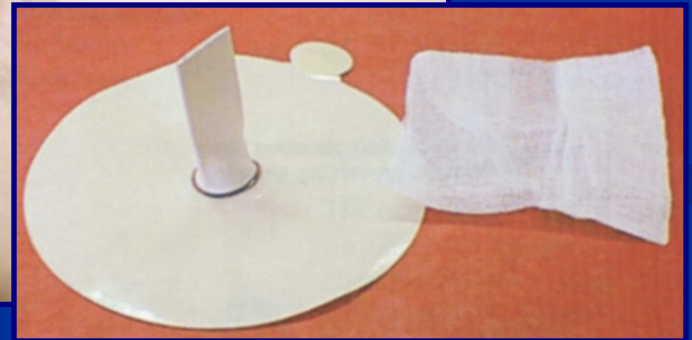
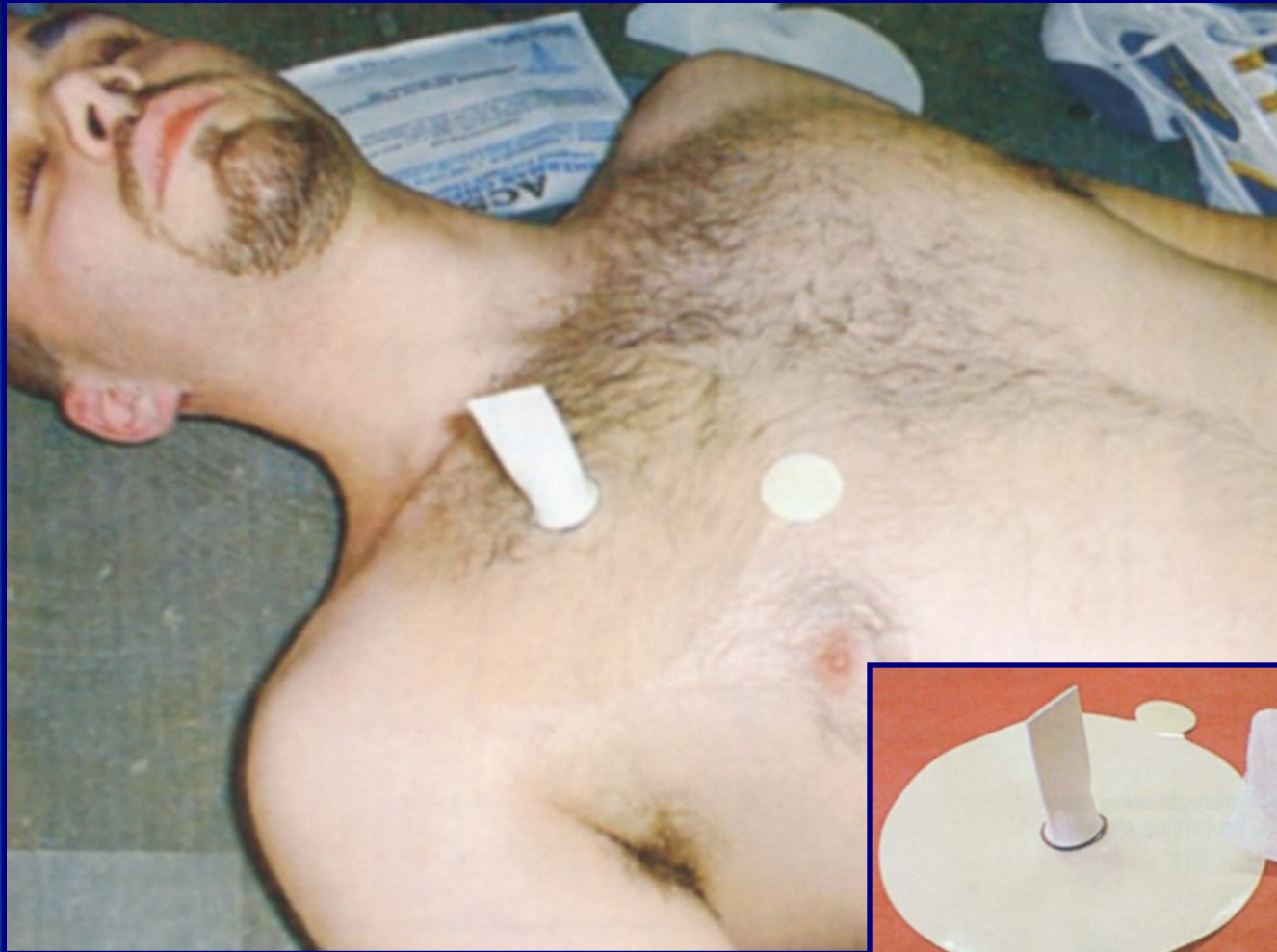
- **Management:**
 - **Ensure an open airway**
 - **Seal the wound. Both entrance and exit with an occlusive dressing, petrolatum gauze or Asherman Chest Seal® (LOOK FOR THE EXIT HOLE)**
 - **Real world: Place the casualty in their position of comfort. Test=injured side**
 - **Monitor respirations after an occlusive dressing is applied. Consider doing a NCD if respirations become labored.**

Open Pneumothorax

- Petroleum Gauze can also be used to seal a sucking chest wound.



"Asherman Chest Seal®"



Treating Open and Closed Chest Wounds (Cont'd)



Treating Open and Closed Chest Wounds (Cont'd)



Treating Open and Closed Chest Wounds (Cont'd)

- For multiple injuries to the chest (e.g. casualty exposed to shrapnel from a mortar or an IED), You can use Tegaderm (**IV OP Sites**) to cover multiple areas.
- The Goal is to seal the Chest area immediately

Treating Open and Closed Chest Wounds (Cont'd)

- **Demonstration of sealing an Open Chest Wound, and discussion of various materials that can be used in this process.**
- **Demonstrate how to create a “Flutter Valve” and the need for one.**
- **Demonstrate how to seal an Open Chest wound with an impaled Object**



Treating Open and Closed Chest Wounds (Cont'd)

- **Closed Chest Wounds / Tension Pneumothorax**

- **Signs and Symptoms**

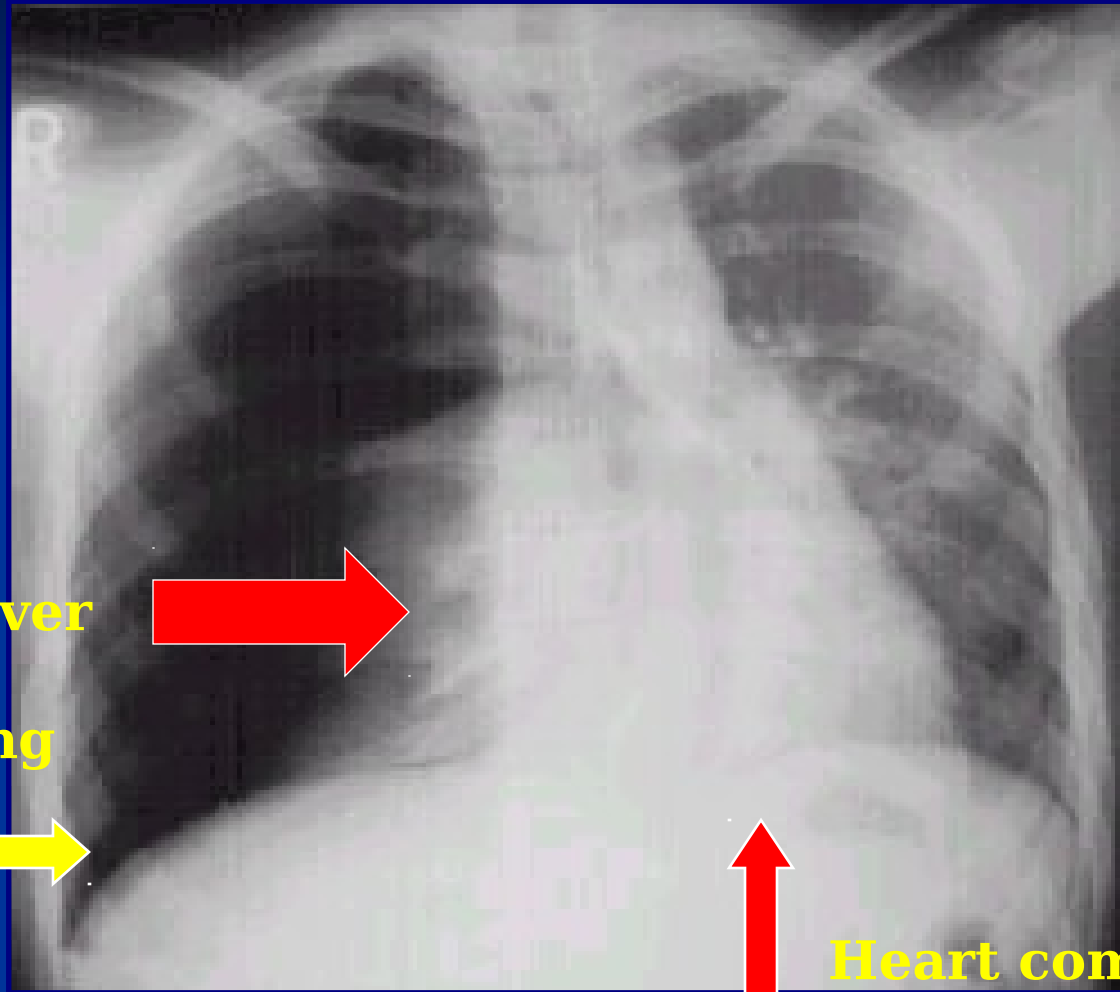
- **Anxiety, agitation, and apprehension**
- **Diminished or absent breath sounds**
- **Increasing difficulty in breathing with cyanosis (bluish tint around lips, nail beds, inside mouth)**
- **Rapid shallow breathing**
- **Abnormally Low Blood Pressure (NO RADIAL PULSE IS PRESENT)**

Treating Open and Closed Chest Wounds (Cont'd)

■ Signs and Symptoms of a Tension Pneumothorax (Cont'd)

- Distended Neck veins
- Cool clammy skin
- Decreased Level of Consciousness
- Visible deterioration of casualties condition
- Tracheal deviation (Shifting of the windpipe to the left or right) [**A late sign, and probably will not be observed**].

Treating Open and Closed Chest Wounds (Cont'd)



**Air pushes over
heart and
collapses lung**

**Air
outside
lung
from
wound**

**Heart compressed
not able to pump
well**

Treating Open and Closed Chest Wounds (Cont'd)

- **Management:**

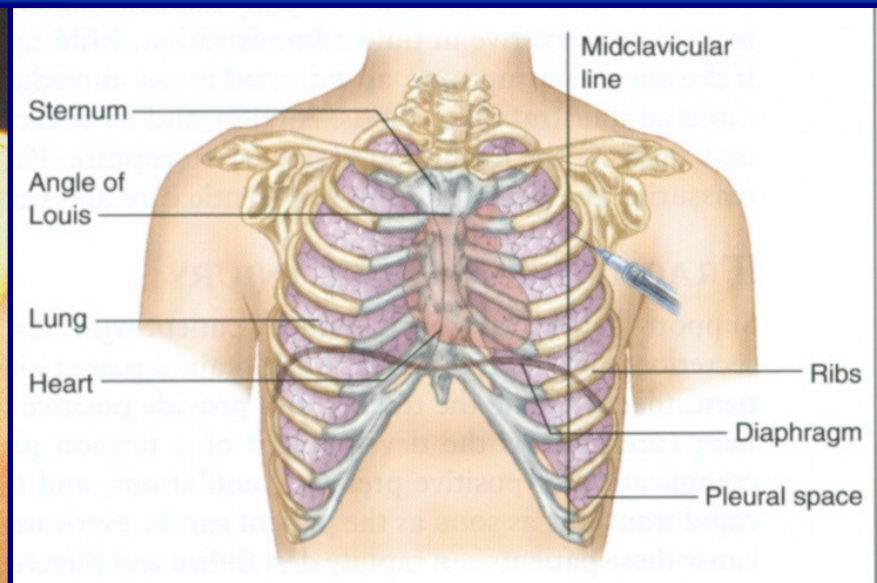
- **Ensure an open airway**
- **Decompress the affected side**

- **Indications:**

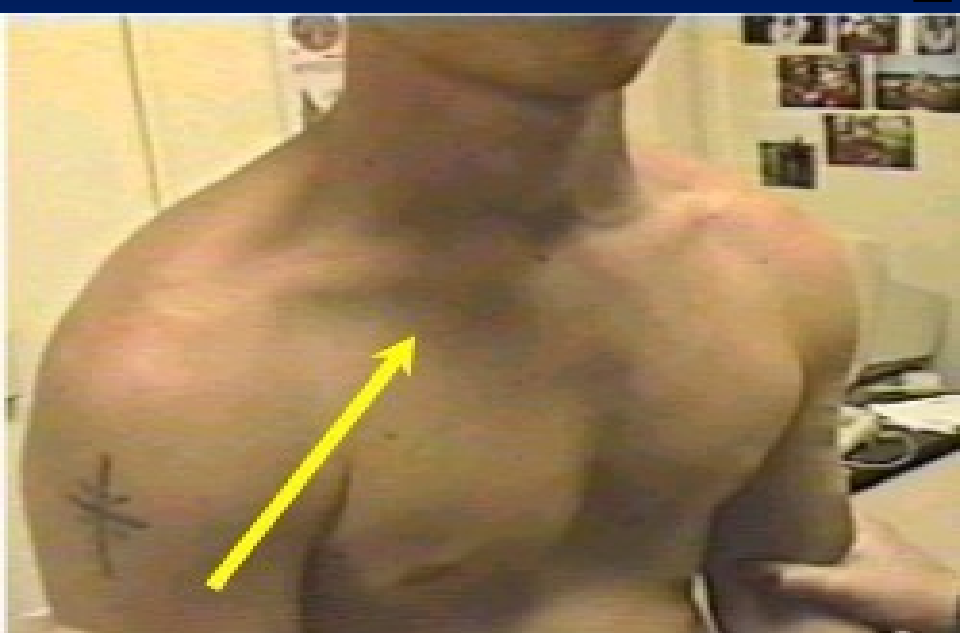
- **Any chest trauma with progressive respiratory distress.**

Treating Open and Closed Chest Wounds (Cont'd)

- **Procedure:**
 - **Identify the second ICS on the anterior chest wall, MCL:**



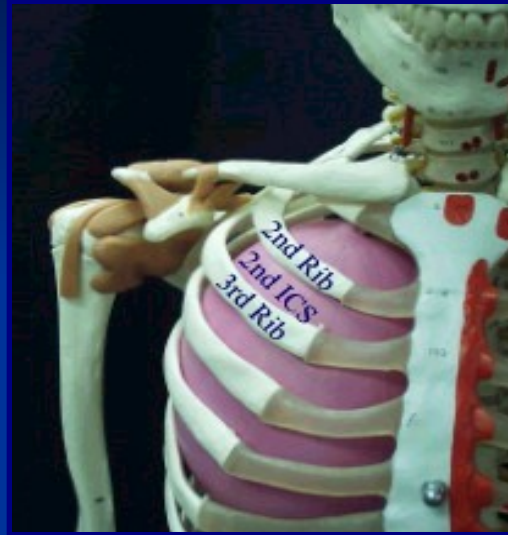
Needle Chest Decompression



Treating Open and Closed Chest Wounds (Cont'd)

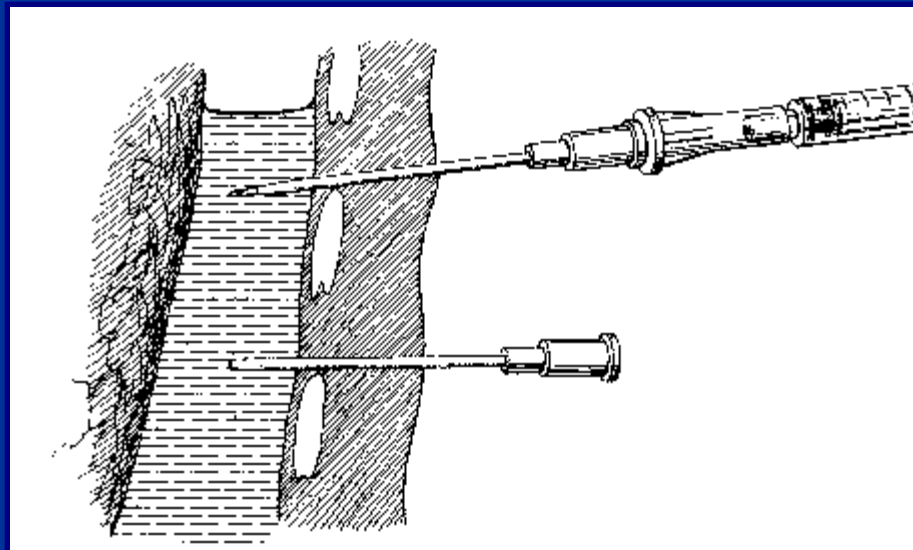
- **Insert a 14 ga. Catheter at a 90° angle over the top of the 3rd rib, into the 2nd ICS at the MCL.**
- **Needle must be long enough to enter the chest cavity (3 1/4 - 3 1/2 inches). Per the Army Surgeon Generals guidance.**

Treating Open and Closed Chest Wounds (Cont'd)



Treating Open and Closed Chest Wounds (Cont'd)

- If a tension pneumothorax is present, a “hiss of air” may be heard escaping from the chest cavity.
- Remove the needle, leave the catheter in place.



Treating Open and Closed Chest Wounds (Cont'd)

- Tape the catheter hub to the chest wall.
- The casualty's condition should rapidly improve.
- If the catheter is removed accidentally, just re-insert another 14 gauge needle next to the former one.
- Evacuate ASAP
- Make sure Flight catheter in his chest

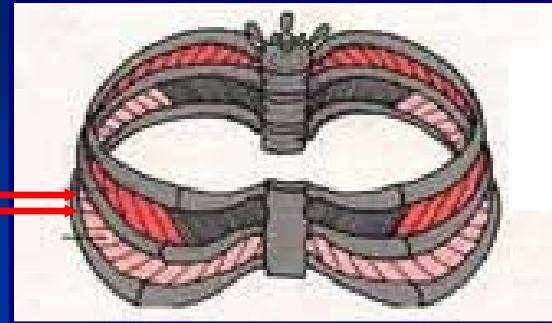


he has a

Treating Open and Closed Chest Wounds (Cont'd)

- Questions:

- Why “up and over” and Never “down and under”



- What if casualty doesn't have a tension pneumothorax and you perform NCD?
 - May already have hole(s) in chest
 - Probably larger than diameter of 14 ga. needle
 - No additional damage

Treating Open and Closed Chest Wounds (Cont'd)

- Questions:
 - Will lung re-inflate after pressure is released from chest cavity? Example: The Three Kings movie
 - No. To re-inflate the lung you must have a chest tube with suction and or positive pressure ventilation.
 - NCD merely releases the tension and built up pressure which will ultimately suffocate the casualty.

Treating Open and Closed Chest Wounds (Cont'd)

- Complications:
 - Insertion of the needle over the top of the rib prevents laceration of the intercostal vessels or nerve which can cause hemorrhage or nerve damage.
 - “Up and over” NEVER “down and under”

Treating Open and Closed Chest Wounds (Cont'd)

- Injuries to the chest are fewer in nature secondary to modern body armor, however it doesn't protect 100%.
- Wounds to the chest can be rapidly fatal if not identified early and treated appropriately.

Treating Open and Closed Chest Wounds (Cont'd)

- **QUESTIONS?**
- **Demonstration of NDC on a mannequin**